Wisconsin Lakesider

Great Lakes Area of Concern Newsletter

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AOC News & Events

Sheboygan River Proposes to Remove Second BUI in 2015

Sheboygan River at Esslingen Park

The Sheboygan River AOC has made a huge comeback in recent years. Planning and implementation of remediation and restoration work was accelerated after the AOC was selected as one of US EPA's priority watersheds for delisting in 2010. Funding from the Great Lakes Restoration Initiative as well as the cooperation between the community, private companies and public agencies have made it possible to complete all priority projects identified as needed to achieve AOC goals. Now, monitoring to assess the status of the impairments has shown that the work is paying off.

In August, US EPA agreed with the recommendation to remove the "Restrictions on Dredging Activities" beneficial use impairment for the Sheboygan River AOC. This monumental achievement came after more than 25 years of identifying, planning, and completing four major sediment projects which removed harmful polychlorinated biphenyls (PCBs), (cont. on page 5)

Milwaukee's Lincoln Park Cleanup Nears Completion

Visitors to Milwaukee's Lincoln Park saw a lot of activity over the past several months, as Phase II of the Lincoln Park sediment remediation project dug into some of the most contaminated areas of the Milwaukee River. The Lincoln Park sediment cleanup project is addressing significant deposits of harmful polychlorinated biphenyls (PCBs) and polycyclic aromatic hydrocarbons (PAHs) which were likely left behind by industrial manufacturing practices and spills in the area. Phase II includes the main channel of the Milwaukee River starting immediately upstream of Lincoln Park and extending downstream to the Estabrook Park Dam. It is the final phase of a three part project which began with the cleanup of Blatz Pavilion in 2008 and Phase I in 2012, which included Lincoln Creek and the west oxbow of the Milwaukee River.

Excavation of the contaminated areas began in December of 2014. To ensure a safe and comprehensive cleanup, cofferdams were put in place to temporarily block water flow and allow for dry removal of the sediment. An on-site mobile lab (cont. on page 6)

Contamination is removed using a carefully mapped grid pattern on the Milwaukee River above Estabrook Park Dam.

St. Louis River

St. Louis River Alliance board members installed an interpretive sign on Clough Island

What's Happening?

To learn more about St. Louis River AOC projects and events visit http://dnr.wi.gov

search "St. Louis AOC"

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The 2015 Beneficial Use Impairment *Restoration Report.*

Clough Island Work Improves Fish and Wildlife Habitat

Over the past four years, the Wisconsin Department of Natural Resources has worked with partners to restore native ecosystems on Clough Island. The DNR's work on Clough Island will help restore fish and wildlife habitat that has been lost over the past century due to pollution and development.

The Nature Conservancy purchased Clough Island from developers in 2010, and the DNR acquired it shortly thereafter. It is the largest island in the St. Louis River. It was logged in the early 20th century and historically supported a small farm and homestead. Today, the protected island boasts a patchwork of aspen-birch forests and wet meadows, surrounded by steep clay cliffs.

Brown, crispy, treated buckthorn on Clough Island. Killing invasive buckthorn will help restore the native ecosystem.

In 2012, the DNR began conducting surveys to inventory the natural resources on the island. The Natural Heritage Inventory (NHI) conducted a biological survey to gather information about the flora and fauna on the island. An invasive plant survey and wetland surveys were also conducted.

DNR developed a restoration plan in 2012. The plan aims to recreate the habitat that existed on the island before it was logged and farmed. Since 2012, DNR contractors have removed invasive species like buckthorn and honeysuckle on a total of 198 acres. Contractors planted trees over a total of 45 acres. The species planted include white pine, white spruce, white cedar, and balsam fir. The St. Louis River Alliance cleaned up trash from the island. They also installed an informative sign at the main access point on the south side of the island. Today, the island is on its way to recovery!

The public can enjoy day use of Clough Island, which can be accessed by boat in the warm season. –Molly Wick, WDNR Habitat Specialist

Semi-Aquatic Mammal Survey Provides Evidence on Population Health

Wisconsin DNR and University of Wisconsin-Madison are conducting a Small Semi-Aquatic Mammal Survey in the St. Louis River Area of Concern. The study will show the abundance of beaver, otter, muskrat and mink in the estuary. Resource managers will use the results to determine if wildlife populations in the estuary are still degraded due to the history of pollution and development in the area.

Biologists conduct aerial surveys in the fall and early winter. For these surveys, two biologists watch the shoreline from a fixed-wing aircraft and count signs of the species such as lodges, dams, slides, and latrine sites. The biologists then use statistics to determine the abundance of the species based on the signs they observed along the shoreline.

Trail camera surveys are also a part of the study. Biologists set trail cameras along the river to capture photos of the animals in their tracks. Experts then use statistics to analyze the images and figure out how many critters are living in the Area of Concern. The results of the 2-year study will be out next summer. –Molly Wick, WDNR Habitat Specialist

Trail cameras captured an otter at night (left) and a beaver building its den (above)

Lower Menominee River


Laurel Last

Brush piles provide cover, loafing, basking and feeding opportunities for a variety of species.

Menekaunee Harbor Habitat Restoration Underway

Now that dredging is complete in Menekaunee Harbor, the project has entered its next phase: habitat restoration. The city of Marinette and Wisconsin DNR continue to work together to improve the harbor area for fish, wildlife, and people. The city has hired Applied Ecological Services to implement the project, with oversight by Robert E. Lee & Associates. In August, Applied Ecological Services began the habitat restoration work, which will occur in the wetland area at the east end of the harbor. The work will include planting native vegetation, controlling invasive plants, and installing various habitat structures, including rock piles, brush piles, bird nesting boxes, bat houses, and in-water wood structures for fish.

Habitat restoration is expected to be completed in 2015, with follow-up invasive plant monitoring and control through 2018 to ensure project and AOC goals are met. The restoration is expected to benefit fish, including northern pike, musky, walleye, largemouth and smallmouth bass, yellow perch, and bluegill; birds, such as red-winged blackbirds, wood ducks, tree swallows, mallards, terns, gulls, great blue herons, northern harriers, and belted kingfishers; mammals; amphibians; and reptiles. The city and Wisconsin DNR share a vision for the harbor that includes better public access, improved economic and recreational opportunities, a cleaner environment, and improved habitat for fish and wildlife.—Laurel Last

What's Happening?

To learn more about the Lower Menominee River AOC projects and events visit http://dnr.wi.gov

search "Menominee River AOC"

For more information, contact:
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Waterfront Cleanup Engages Community in AOC

The Lower Menominee River September 12th waterfront cleanup was a huge success! The Lower Menominee River Citizens Advisory Committee (CAC) hosted the event, in order to bring citizens together to pick up litter along local waterways while informing them of progress being made in the restoration of the AOC. Twenty-seven CAC members and other volunteers showed up to lend a hand, meeting at Nestegg Marine in Marinette before and after the event. Work took place at seven public access waterfront sites in Marinette and Menominee. At least 21 bags of trash were collected, along with a tire, siding, railroad spikes, and a traffic cone (returned to the city of Marinette). Volunteers were provided with gloves, garbage bags, AOC t-shirts, and a pizza lunch. CAC members provided a short introduction to the AOC, and AOC-related displays and information were available on-site. Thanks so much to everyone who pitched in to help! The event was partially funded by a Great Lakes Restoration Initiative outreach support grant. –Laurel Last


Jo Temte


Jo Temte


Cheryl Bougie

Heat sensitive cameras helped document shorebird species on Cat Island. A state endangered Caspian Tern can be seen in the bottom left of the photo.

Lower Green Bay & Fox River

As Work Continues on the Cat Island Chain, Studies Reveal the Ecological Benefits

The lower portion of Lake Michigan's Green Bay has undergone some significant changes over the last few years, all in an effort to restore some critical habitat that was literally washed away in the last half century. When the Cat Island chain [Exit DNR] was severely damaged in the late 1970s, significant impacts were observed in the ecological communities in the area. After nearly 25 years, a project to restore these islands finally began in 2013. In just 2 years, the ecological benefits of this "Version 2.0" of the Cat Island chain are already becoming evident.

Restoring the Habitat Behind the Islands

In 2013, a team of researchers from the University of Wisconsin-Green Bay received funds from Wisconsin DNR through the Great Lakes Restoration Initiative to determine whether there were any wetland plant seeds still present in sediments near Green Bay's west shore. This was an area that was behind Cat Island and that used to have flourishing communities of aquatic plants back when Cat Island provided a barrier against the high winds that can whip through the bay and create large, damaging waves. Native wetland and aquatic plants provide important habitat that's necessary for many species of fish and birds. With the planned installation of Cat Island 2.0, researchers hoped that, if there was still a seed bank in the sediments, it might be possible for the aquatic plants to return once the restoration of the island chain was complete.

The results of the UWGB study suggested that there were very few native aquatic plant seeds remaining in the sediments, and a possible solution might be a re-introduction of these seeds. In 2014, UWGB obtained grant funds [Exit DNR] from Ducks Unlimited and the federal government to initiate a project to do just that. The goal was to see if water-loving plants like wild rice, hardstem bulrush, and wild celery could be re-established. If successful, this would mark a significant milestone, as wild rice hadn't been observed in the lower portion of the Bay for many decades.

In the summer of 2015, that initial milestone was reached, as wild rice was observed in the watery plots that had been sewn the previous fall. There is still more work to do, but it appears as though the Cat Island chain and associated restoration projects will also help facilitate the re-establishment of these plants that perform a vital ecosystem function. Stay tuned for future updates on this exciting work! - Megan O'Shea

Rare Birds Inhabit the Extensive Island Shoreline

The extensive beach and shoreline being established by the Cat Island Restoration project, as well as the enhanced wetland area that is beginning to form behind it, has the benefit of providing habitat for numerous species of birds, including several that are endangered or threatened. Beginning in 2013, the use of these newly formed habitats by bird species has been studied by Tom Prestby, Robert Howe and Amy Wolf at the University of Wisconsin–Green Bay in an effort to document and understand the birds that are using these areas and how best to manage the habitat to ensure healthy bird populations moving forward.

For the study, Prestby conducted field surveys to document which species of birds and how many of each are present at specific sites around the islands. Details about temperature, atmospheric pressure, wind speed and direction, sky conditions, water levels, and habitat (such as sand, rock, vegetation, and water cover) were documented. In addition, more than 100,000 images were recorded which provided insights into fluctuating water levels, species interactions and the effect of human presence on bird activities.

Preliminary results have shown that the Cat Island wave barrier site has an impressive abundance and variety shorebirds. In total, 31 species were detected during the project at the site. In comparison, the second-most productive site studied, Red River Park between Green Bay and Sturgeon Bay, had only 13 shorebirds species detected. These include three high-periled and nine high priority conservation concern species including the endangered Piping Plover and the threatened Red Knot. In addition, although not a shorebird, a federally endangered Whooping Crane has also been seen at the site multiple times this summer. Data for this study will be evaluated and discussed in Prestby's Master's thesis, which will include management recommendations for sustaining and enhancing shorebird habitat in the lower bay, especially at Cat Island. -Emily Punke

Federally endangered Piping Plover

What's Happening?

To learn more about Lower Green Bay & Fox River AOC projects and events visit http://dnr.wi.gov

search "Green Bay AOC"

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Sheboygan River

What's Happening?

To learn more about Sheboygan River AOC projects and events visit http://dnr.wi.gov

search "Sheboygan River AOC"

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Floating rafts collect mink tracks to monitor activity on the river.

Mink Monitoring Offers Insight on Ecosystem Health

In laboratory settings, mink have shown an extreme sensitivity to polychlorinated biphenyl (PCB) contamination. Even at low levels of exposure, mink reproduction can be impaired. Mink also sit high on the food chain in riparian areas, consuming a wide variety of prey, including fish, amphibians, and small mammals. Much of this prey, such as fish and small mammals, have tested positive in the past for contamination, especially PCBs. The wide variety of prey consumed, and the sensitivity to low levels of contamination make mink extremely useful as a bio-indicator of the health of an ecosystem. It has long been suspected that mink populations in the AOC were limited due to the PCB contamination.

2015 is the 2nd year of a 3 year mink monitoring project within the Sheboygan River AOC. The project uses novel, minimally intrusive floating rafts to collect mink tracks within the AOC and within a control area that is 5+ miles upstream. The study design should compare mink numbers between the two sections of river without removing individuals from an already small population.

In addition, if mink activity is detected, a live trap can be set in an effort to capture the mink for collection of a blood sample. These blood samples would be used for environmental contamination testing within the existing mink population.

This year's monitoring efforts are in progress, and to date 11 mink tracks have been recorded from within the AOC and 9 mink tracks have been recorded within the control area. There still have not been any mink captured for blood sampling and there are two weeks left to collect data. –Natalie Miller, WDNR Wildlife Biologist

BUI removals (cont. from front)

(cont. from page 1) polycyclic aromatic hydrocarbons (PAHs), heavy metals and other contaminants. Sediment remediation and removal also allowed for a deeper channel in the harbor and lower river for boating and fishing. In total, approximately 400,000 cubic yards of contaminated sediments were removed from the river from 2011-2013.

In September, the Wisconsin DNR released its draft proposal to remove the "Eutrophication or Undesirable Algae" beneficial use impairment. Water quality has improved dramatically in the past several decades as a result of numerous efforts including wastewater treatment plant upgrades, agricultural practices to reduce soil erosion and runoff, and reduced phosphorus content in detergents and lawn applications. After many years of combined efforts, phosphorus concentrations have been greatly reduced, algae blooms are rare, and dissolved oxygen levels, which are important for supporting aquatic life, have been at consistently healthy levels. Wisconsin DNR is seeking input from the public, local AOC stakeholders and EPA on the recommendation to remove the BUI and hope to have a final report and agreement on BUI removal in the next few weeks.

These accomplishments have already shown benefits both to the ecological health of the river as well as the community which surrounds it. Once considered poor to very poor, communities of macroinvertebrates, or bugs living within the river, as well as fish are now generally in fair to excellent condition. A study on the economic impacts of remediation work [exit DNR], initiated by University of Wisconsin Sea Grant Institute and Wisconsin DNR, showed anglers are now better able to access dredged areas in the harbor. The future is looking bright for the Sheboygan River. The removal of the contaminated sediments and the improved water quality are helping the river and its inhabitants to heal. –Emily Punke

Sheboygan harbor dredging, 2012

Milwaukee Estuary

What's Happening?

To learn more about Milwaukee Estuary AOC projects and events visit http://dnr.wi.gov

search "Milwaukee AOC"

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Citizen Monitoring Measures Aesthetic Improvements

Emmber Lane is one area which has shown improvement in recent years.

Volunteers have been heading out to evaluate river aesthetics at nine stations along the Milwaukee River, Menomonee River, Kinnickinnic River and Lake Michigan shoreline since this spring. The volunteers, coordinated by Milwaukee Riverkeeper, complete a survey form during their visit. Each site is visited by many volunteers throughout the spring, summer and fall in order to gain a broad perspective on the conditions present. The information collected will be used to determine if aesthetics are impaired in that area, and if so, in what manner it is impaired. The purpose of the monitoring is to determine how far the Milwaukee Estuary AOC has come since it was identified as an AOC in 1987. Results from this program will be incorporated into the removal strategy for this impairment. - Stacy Hron

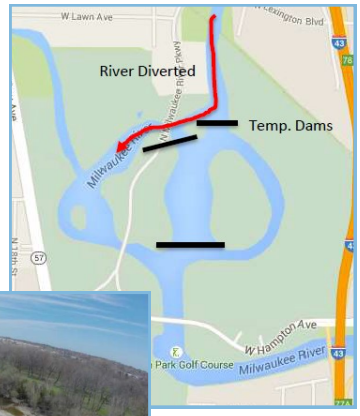
Lincoln Park (cont. from front)

(cont. from page 1) allowed for contaminant testing before and after removal to ensure all the "hot spots" were adequately removed. In addition, the site included its own wastewater treatment system and decontamination area, to ensure water and equipment which came in contact with the sediment were properly and safely contained.

In July, sediment removal was completed in the area of the main channel above the Hampton Ave. bridge. Removal of ribbon deposits south of the Hampton Ave. bridge and above the Estabrook Park Dam continued into the end of the summer with excavation work wrapping up in mid-September. In total, approximately 50,000 cubic yards of contaminated sediment was removed. To put that into perspective, that is about 2,500 dump truck loads of contaminated sediment hauled out of the river! Restoration work, which includes placement of boulders and root wads for fish habitat as well as native plantings, has begun and will continue into 2016 followed by several years of maintenance.

The Lincoln Park cleanup marks a very important accomplishment for the Milwaukee Estuary AOC. Studies have shown that this site has been one of the major contributors to PCBs within the Milwaukee River and harbor, and the cleanup of this area is expected to result in significant long term reductions of PCBs within the river system. Completion of this project will help to address 6 of the 11 beneficial use impairments listed for the Milwaukee Estuary.

To get a bird's eye view of the sediment removal in action, check out this drone footage [Exit DNR], filmed by Duane Thomas of EA Engineering.
-Emily Punke



Temporary cofferdams allowed for dry excavation of the sediment. Photo shows main channel of Milwaukee River looking upstream (North).

Milwaukee River Basin TMDL Draft Plan, Implementation Team Coming Together

The Milwaukee River Basin Total Maximum Daily Load (TMDL) project has been coming together this year, with the draft plan currently undergoing review. A TMDL is the amount of a pollutant a waterbody can receive and still meet water quality standards. It can be thought of as a pollution "budget" for a water body or watershed that establishes the pollutant reduction needed from each pollutant source to meet water quality goals. Pollutants that this plan is focused on addressing include phosphorus, fecal coliform bacteria, and sediment loading. This is an important project for the "Eutrophication or Undesirable Algae" impairment listed for the Milwaukee Estuary AOC.

The TMDL includes four individual TMDLs, the Milwaukee, Menomonee and Kinnickinnic River, and the Milwaukee Harbor/Estuary. These TMDLs are being developed by Milwaukee Metropolitan Sewerage District (MMSD) and their consultant CDM Smith, with funding from US EPA. In addition to the individual TMDLs, a TMDL implementation plan is also being developed, which will identify the next steps needed to reduce pollution and meet water quality criteria. The TMDL and the Implementation Plan are a prescription and restoration strategy to reduce pollutant levels and restore designated uses.

While the Milwaukee River Basin TMDL is being developed by MMSD, Wisconsin DNR plays a critical role, led by Water Resources Engineer Kevin Kirsch, in the partnership to develop the plan. The Wisconsin DNR TMDL team completed a comprehensive review of the draft (cont. on page 7)

New Photo Contest Category for 2016: Great Lakes Stewardship

Wildwood Island After Restoration by Debbie Beyer, Sheboygan River AOC
1st Place 2014 *Lake Protection Activities* category winner

There's a lot of good work going on to protect and restore Wisconsin's Great Lakes! We have added a new category called "Great Lakes Stewardship" to our annual Great Lakes Photo Contest to highlight your efforts. Show us how you, your agency/organization or a local group is protecting, enhancing or restoring the shore, tributaries, wetlands or beaches of Lake Michigan or Lake Superior. Send us a photo of your work and a brief (up to 180 words) description of the partners involved, your funding source and what you hope to accomplish. Include a web link, if applicable. If people appear in the photo, please ask their permission before submitting photos.

Entering is easy! Just attach your photo and short writing to an email and send to: DNRGreatLakesPhotoContest@wisconsin.gov. In your email, please include the photo title, where in Wisconsin the photo was taken, the entry category, your name, email address, mailing address and phone number(s). Photos must be high resolution and horizontal in orientation. **The submission deadline is February 1, 2016.**

Photos in all seasons are needed. Winning photos will be used in our annual "Wisconsin's Great Lakes" calendar and in other DNR publications, presentations, websites and displays. For more information, visit: http://dnr.wi.gov/topic/greatlakes/contestrules.html

AOC Display Featured at Wisconsin State Fair

Staff from the Office of the Great Lakes paired up with the Drinking and Groundwater team once again this year at the Wisconsin State Fair to raise awareness on protecting and conserving Wisconsin's waters. Visitors to the booth, located in the DNR Park on the fairgrounds, learned about the Great Lakes role as a resource for the region's environment, economy, and health. Kid's participating in the "Nature Scavenger Hunt" stopped by to find out where their water comes from, and learned about the use of the Great Lakes as a drinking water source. DNR staff greeted the fairgoers, provided information and answered questions.

Emily Punke

Emily Punke

The booth featured a stop on the kids scavenger hunt as well as more in depth information and take home materials about Wisconsin's AOCs.

This year the booth featured a new display and informational materials focused on Wisconsin's Areas of Concern. The Milwaukee Estuary AOC was highlighted and many residents of Milwaukee and the surrounding area visiting the booth learned for the first time about the AOC and its many important projects happening right in their city. Visitors from around the state took home informational materials and AOC themed lanyards to spread the word about the important work happening at all 5 of Wisconsin's AOCs. It was a great opportunity to connect with the public and share our goals and progress. -Emily Punke

Milwaukee TMDL (cont.)

(cont. from page 6) TMDL earlier this year and is currently working with MMSD, CDM Smith, and US EPA to incorporate comments and make revisions. The tentative schedule calls for completion of the draft TMDL by the end of this year with public comment and US EPA review completed in 2016.

Once the plan is in place, it will need to be implemented and enforced. Currently, a TMDL implementation team is being formed and will consist of numerous DNR staff from the areas of water quality, runoff, and monitoring. As with other TMDLs in the state (e.g. St. Croix and Rock River), the implementation team will consist of unique sectors to best serve our various customers and stakeholders. Tentatively these include MS4/ Stormwater, Agriculture, Waste Water, Monitoring, and Education/ Outreach. Outreach workshops and meetings are currently being planned and the first workshop is anticipated to take place within the next few months. If you are interested in participating, please contact Mark Riedel (marks.riedel@wisconsin.gov).

-Mark Riedel, Milwaukee Estuary TMDL Project Manager

WISCONSIN DEPT. OF NATURAL RESOURCES

Wisconsin DNR Office of the Great Lakes

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